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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/672,352	09/28/2000	Clinton A. Staley	08822-050001	7756

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EXAMINER

WONG, ALLEN C

ART UNIT

PAPER NUMBER

2613

DATE MAILED: 12/13/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/672,352

Applicant(s)

STALEY ET AL.

Examiner

Allen Wong

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-26 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-26 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. ____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|--|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>5/14/01, 3/26/02</u> . | 6) <input type="checkbox"/> Other: ____ |

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1-8, 12-14, 16-23 and 26 are rejected under 35 U.S.C. 102(b) as being anticipated by Lim (5,638,126).

Regarding claims 1 and 19, discloses a program storage media storing computer executable instructions, the instructions to cause a computer to:

estimate forms of a plurality of functions, each function relating encoded size to encoded quality for an associated frame belonging to a sequence of frames, each frame having data for an image (fig.1, element 10 is the controller connected to the buffer 120 that receives various sizes or amounts of frame image data encoded by coder 110, where a sequence of frames is sent through the encoding system of fig.1 in that since Lim's invention uses an MPEG encoder for encoding a plurality of images, I, P and B frames, each frame within that sequence of frames (GOP) have different sizes, and further, note quantization controller 10, there is a selector 160 that decides which quantization parameter to use on the evaluated frame(s) in order to properly allocate the number of bits to the evaluated frame(s) for efficient coding);

estimate a best quality value for producing encoded frames whose encoded sizes satisfy one or more constraints, the constraints being associated with one or more

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of a transmission line bandwidth, a receiver buffer size and a total size constraint, the estimating a best quality value being based in part on the functions (fig.1, element 10 is the controller connected to the buffer 120 that receives various sizes or amounts of frame image data encoded by coder 110, where the process of generating the encoded data at an acceptable bit rate for transmission in that a recursive process is done to monitor the quality of the encoded bit frames by checking on the buffer fullness to determine the total size constraint, and note Qp adjuster 130 adjusts the quality of the encoded frames and element 160 selects the best quality value Qp, thus, best quality value is estimated; see col.3, ln.47-53); and

order transmission of frames of the sequence, at least some of the frames being encoded with a quality based on the best quality value (fig.1, note data from buffer 120 is transmitted to transmission for transmission of frames of the sequence of images).

Note claims 2-7, 12-14, 20-22 and 26 have similar corresponding elements.

Regarding claims 8 and 23, Lim discloses the encoded frames are from a group of temporally encoded pictures (Lim's invention uses an MPEG encoder for encoding a sequence of images wherein the plurality of images are I, P and B frames, and that these are temporal).

Regarding claim 16, Lim discloses a system for encoding image frames, the system comprising:

a variable bit rate encoder (fig.1, element 110); and

a controller connected to receive data on sizes on image frames encoded by the encoder and to control quality of the encoded frames produced by the encoder, the

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controller capable of causing the encoder to generate encoded data at a rate responsive to one or more of a bandwidth of a transmission line, space in a receiver buffer and a total size constraint (fig.1, element 10 is the controller connected to the buffer 120 that receives various sizes or amounts of frame image data encoded by coder 110, where the process of generating the encoded data at an acceptable bit rate for transmission in that a recursive process is done to monitor the quality of the encoded bit frames by checking on the buffer fullness to determine the total size constraint, and note Qp adjuster 130 adjusts the quality of the encoded frames and element 160 selects the best quality value Qp; see col.3, ln.47-53).

Regarding claim 17, Lim discloses wherein the controller is configured to determine a relation between quality of an encoded image frame and amount of encoded data from the received size data (col.3, ln.47-53 and fig.1, note Qp adjuster 130 adjusts the quality of the encoded frames and element 160 selects the best quality value Qp based on the data obtained from the buffer 120).

Regarding claim 18, Lim discloses wherein the controller is configured to determine a best quality value for encoding an image frame from size data on data frames encoded with different qualities (fig.1, element 10 is the controller connected to the buffer 120 that receives various sizes or amounts of frame image data encoded by coder 110, where the process of generating the encoded data at an acceptable bit rate for transmission in that a recursive process is done to monitor the quality of the encoded bit frames by checking on the buffer fullness to determine the total size constraint, and

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note Qp adjuster 130 adjusts the quality of the encoded frames and element 160 selects the best quality value Qp; see col.3, ln.47-53).

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 9-11, 15 and 24-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lim (5,638,126) in view of Gonzales (5,231,484).

Regarding claims 9-11, 15 and 24-25, Lim does not specifically disclose wherein each instruction to estimate one of the forms, further causes the computer to: compute a plurality of pairs of encoded quality and encoded size values for each frame of the sequence from encoded frame data; and determine a functional relationship between values of the encoded quality and the encoded size for the plurality of frames from the pairs of values. However, Gonzales teaches the calculation of the pairs of quantization parameters for each frame with their respective encoded size values (col.21, ln.3-33; note the QP_{low} has two different values calculated for the different values of the picture, where Δu is the upper limit and Δl is the lower limit for the allocation of bits for the picture or frame, and note that there is a function relationship between the values of the encoded quality and the encoded size of the frames as shown by formula for QP_{low}). Therefore, it would have been obvious to one of ordinary skill in the art to combine the teachings of Lim and Gonzales, as a whole, for providing optimal visual quality when

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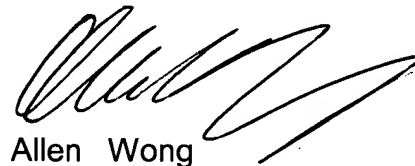
encoding picture or frame data in an accurate, efficient manner (Gonzales col.8, ln.29-38).

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Allen Wong whose telephone number is (703) 306-5978. The examiner can normally be reached on Mondays to Thursdays from 8am-6pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Christopher Kelley can be reached on (703) 305-4856. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Allen Wong
Examiner
Art Unit 2613

AW
12/8/04